

I CLAIM

CLAIMS

1. Nickel base superalloy consisting essentially of, in weight %, about 3% to about 12% Cr, up to about 15% Co, up to about 3% Mo, about 3% to about 10% W, up to about 6% Re, about 5% to about 7% Al, up to about 2% Ti, up to about 1% Fe, up to about 2% Nb, about 3% to about 12% Ta, up to about 0.07% C, about 0.030% to about 0.80% Hf, up to about 0.10% Zr, up to about 0.02% B, up to about 0.050% of a rare earth element, and balance Ni and incidental impurities.

2. The superalloy of claim 1 wherein the rare earth element is selected from the group consisting of Y and Lanthanide series elements with atomic numbers from 58 to 71.

3. The superalloy of claim 2 wherein about 0.0005% to about 0.050 weight % of said rare earth element is present.

4. The superalloy of claim 1 having a sulfur concentration of 2 ppm by weight or less.

5. A coated article, comprising a nickel base superalloy substrate consisting essentially of, in weight %, about 3% to about 12% Cr, up to about 15% Co, up to about 3% Mo, about 3% to about 10% W, up to about 6% Re, about 5% to about 7% Al, up to about 2% Ti, up to about 1% Fe, up to about 2% Nb, about 3% to about 12% Ta, up to about 0.07% C, about 0.030% to about 0.80% Hf, up to about 0.10% Zr, up to about 0.02% B, up to about 0.050% of a rare earth element, and balance Ni and incidental impurities, and a bondcoat on the substrate.

6. The article of claim 5 wherein the rare earth element is selected from the group consisting of Y and Lanthanide series elements with atomic numbers from 58 to 71.

7. The article of claim 6 wherein about 0.0005% to about 0.050 weight % of said rare earth element is present.

8. The article of claim 5 having a sulfur concentration of 2 ppm by weight or less.

9. The article of claim 5 wherein the bondcoat comprises an outwardly grown diffusion aluminide coating.

10. The article of claim 5 wherein the bondcoat comprises an inwardly grown diffusion aluminide coating.

11. A coated article, comprising a nickel base superalloy substrate consisting essentially of, in weight %, about 3% to about 12% Cr, up to about 15% Co, up to about 3% Mo, about 3% to about 10% W, up to about 6% Re, about 5% to about 7% Al, up to about 2% Ti, up to about 1% Fe, up to about 2% Nb, about 3% to about 12% Ta, up to about 0.07% C, about 0.030% to about 0.80% Hf, up to about 0.10% Zr, up to about 0.02% B, up to about 0.050% of a rare earth element, and balance Ni and incidental impurities, a bondcoat on the substrate, and a ceramic thermal barrier coating on the bondcoat.

12. The article of claim 11 wherein the rare earth element is selected from the group consisting of Y and Lanthanide series elements with atomic numbers from 58 to 71.

13. The article of claim 12 wherein about 0.0005% to about 0.050 weight % of said rare earth element is present.

14. The article of claim 11 having a sulfur concentration of 2 ppm by weight or less.

15. The article of claim 11 wherein the bondcoat comprises an outwardly grown diffusion aluminide coating.